

### REMARKS

Reconsideration of the above-identified application is respectfully requested. Claims 1-31 remain in this application. Claims 21-31 are withdrawn as being drawn to a non-elected invention. Claims 1-12 and 14-20 have been amended to more particularly point out and distinctly claim the subject matter that Applicants regard as their invention.

I. Restriction

Restriction to one of the following inventions was required:

I. Claims 1-20, drawn to catalysts and methods of making them, classified in class 502, subclass 159; and

II. Claims 21-31, drawn to methods of “decontamination of a compound”, classified in class 588, subclass 200.

Applicants hereby affirm their election of group I, claims 1-20.

II. Missing and Improperly Cited References

The Examiner noted that some of the references cited to the Office were not furnished and others were not properly cited and hence could not be made of record. Applicants have filed a supplemental IDS to provide the complete information for these references.

III. Claim Rejections – 35 U.S.C. § 112, second paragraph

Claims 1-20 were rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The Examiner stated that Claim 1 is non-enabling as lacking the required structure to fulfill the function recited. Specifically, is not clear what structure of the claimed composition makes the composition capable of hydrolyzing the functional groups, or whether the presence of an additional reagent is necessary to fulfill this function. The Examiner stated that this is also found in claim 15. Applicants have amended claims 1 and 15 to clarify that the composition is capable of hydrolyzing the functional groups when the chelators are immobilized on a support in an aqueous solution.

With regard to claim 7, the Examiner stated that it is not clear that Pb(III) and Ni(III) are stable oxidation states, and that thus these are not typos. Applicants have amended claim 7 to change Pb(III) and Ni(III) to Pb(II) and Ni(II), respectively.

With regard to claim 11, a hyphen was missing after “4” and the Examiner stated that it is not clear what is meant by “analog” and “derivatives” or “an effective level.” Applicants have amended claim 11 by adding the hyphen and by removing the “effective level” language. The meaning of “analog” and “derivatives” is commonly known. For example, the website <<dictionary.reference.com>> gives the following definitions: for “analog” – “Chemistry. A structural derivative of a parent compound that often differs from it by a single element”; and for “derivative” – “Chemistry. A compound derived or obtained from another and containing essential elements of the parent substance.”

With regard to claim 12, step (c), the Examiner stated that it is not clear toward what reaction or reactants the “catalytically active metal ion” is reactive. Applicants have amended claim 12 to clarify that the metal chelate complex is reactive towards hydrolyzing one or more phosphates and phosphate esters.

With regard to claim 16, the word “a” was missing. Applicants have amended claim 16 to add this word.

With regard to claim 17, the Examiner stated that it is not clear on what structural basis the copolymer is to be selected, inviting others to experiment on how to practice the invention rather than teaching how to make and use. Applicants have amended claim 17 to clarify that the support is capable of adsorbing phosphate, phosphono and phosphoro groups.

With regard to claim 18, the Examiner stated that it is not clear how one is to ascertain what a “transition state analog” of phosphates or phosphate esters is, or what reaction to form these compounds is being performed. Applicants have amended claim 18 to remove the “transition state analog” phrase.

With regard to claim 19, the Examiner noted that it should depend from claim 15 in order to give the monomers proper antecedent basis. Applicants have amended claim 19 to have it depend from claim 15 instead of claim 13.

With regard to claim 20, according to the Examiner, “3(5)-vinylpyridine” appears to be incorrect terminology since a second comma without the parentheses as well as insertion of – di—before “vinyl” seem to be required. Applicants have amended claim 20 to replace “3(5) vinyl pyridine” to “3(4)vinylimidazole.”

#### IV. Claim Rejections – 35 U.S.C. § 102(b) – Sielcken

Claims 1-4, 6, 12, and 13 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent 5,620,938 to Sielcken.

Applicants respectfully submit that Sielcken does not anticipate claims 1-4, 6, 12, and 13. To be anticipating, a reference must disclose every element of the claims. *Scripps Clinic & Res.*

*Found. v. Genentech, Inc.*, 927 F.2d 1565, 1576 (Fed. Cir. 1991); *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236 (Fed. Cir. 1989). If the reference lacks any claimed element, there is no anticipation. *Kloster Speedsteel AB v. Crucible Inc.*, 793 F.2d 1565, 1571 (Fed. Cir. 1986).

Sielcken only discloses epoxidation catalysts, which are a different class of catalysts than hydrolytic catalysts. Thus, Sielcken does not disclose “a hydrolytically active complex of a chelated metal ion” as recited in amended independent claim 1, or a “metal chelate complex . . . capable of catalyzing the hydrolysis of one or more phosphates . . .” as recited in amended independent claim 12. Therefore, Sielcken cannot anticipate claims 1-4, 6, 12, and 13.

V. Claim Rejections – 35 U.S.C. § 102(b) – Meunier

Claims 1, 2, 4, 6, 7, 10, 15, and 16 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent 5,141,911 to Meunier.

Applicants respectfully submit that Meunier does not anticipate claims 1, 2, 4, 6, 7, 10, 15 and 16. Meunier only discloses oxidation catalysts, which are a different class of catalysts than hydrolytic catalysts. Thus, Meunier does not disclose “a hydrolytically active complex of a chelated metal ion” as recited in amended independent claim 1, or “metal chelate complexes . . . capable of catalyzing the hydrolysis of one or more phosphates . . .” as recited in amended independent claim 15. Therefore, Meunier cannot anticipate claims 1, 2, 4, 6, 7, 10, 15, and 16.

VI. Claim Rejections – 35 U.S.C. § 102(b) – Ying

Claims 1-4, 6, 7, 10, 12, and 13 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent 6,028,025 to Ying et al.

Applicants respectfully submit that Ying does not anticipate claims 1-4, 6, 7, 10, 12, and 13. Ying only discloses oxidation catalysts, which are a different class of catalysts than hydrolytic catalysts. Thus, Ying does not disclose “a hydrolytically active complex of a chelated metal ion” as recited in amended independent claim 1, or a “metal chelate complex . . . capable of catalyzing the hydrolysis of one or more phosphates . . .” as recited in amended independent claim 12. Therefore, Ying cannot anticipate claims 1-4, 6, 7, 10, 12, and 13.

VII. Claim Rejections – 35 U.S.C. § 103(a) – Ying and Sielcken

Claims 1-14, 19 and 20 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Ying and Sielcken as cited above. The Examiner stated that Ying and Sielcken lack disclosure of some of the preferred embodiments of the present invention, but that those embodiments would have been conventional in the art to achieve.

Applicants respectfully submit that claims 1-14, 19 and 20 are not obvious over Ying and Sielcken. To establish a prima facie case of obviousness, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981 (C.C.P.A. 1979); M.P.E.P. 2143.03. As discussed above, Ying and Sielcken only disclose oxidation and epoxydation catalysts, which are a different class of catalysts than hydrolytic catalysts. Thus, neither Ying nor Sielcken disclose “a hydrolytically active complex of a chelated metal ion” as recited in amended independent claim 1, a “metal chelate complex . . . capable of catalyzing the hydrolysis of one or more phosphates . . .” as recited in amended independent claim 12, or “metal chelate complexes . . . capable of catalyzing the hydrolysis of one or more phosphates . . .” as recited in amended independent claim 15. Moreover, it would not be obvious to one of ordinary skill in the art to use an

oxidation or epoxidation catalyst with a reasonable expectation of it catalyzing a hydrolytic reaction.

Since the combination of Ying and Sielcken does not teach or suggest every element of claims 1-4, 6, 12, and 13, Applicants respectfully submit that claims 1-14, 19 and 20 are not obvious over Ying and Sielcken.

VIII. Claim Rejections – 35 U.S.C. § 103(a) – Meunier

Claims 1-11 and 15-18 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Meunier as cited above. The Examiner stated that Meunier lacks disclosure of some of the preferred embodiments of the present invention, but that those embodiments would have been conventional in the art to achieve.

Applicants respectfully submit that claims 1-11 and 15-18 are not obvious over Meunier. As discussed above, Meunier only discloses oxidation catalysts, which are a different class of catalysts than hydrolytic catalysts. Thus, Meunier does not disclose “a hydrolytically active complex of a chelated metal ion” as recited in amended independent claim 1, or “metal chelate complexes . . . capable of catalyzing the hydrolysis of one or more phosphates . . .” as recited in amended independent claim 15. Moreover, it would not be obvious to one of ordinary skill in the art to use an oxidation catalyst with a reasonable expectation of it catalyzing a hydrolytic reaction.

Since Meunier does not teach or suggest every element of claims 1-11 and 15-18, Applicants respectfully submit that claims 1-11 and 15-18 are not obvious over Meunier.

Application Serial No.: 09/862,418  
Applicant(s): Chang et al.

Docket No.: N.C. 79,764

In view of the foregoing, it is respectfully submitted that this application is ready for allowance. Applicants respectfully request that a timely Notice of Allowance be issued in this case. Kindly charge any additional fees due, or credit overpayment of fees, to Deposit Account No. 50-0281.

Respectfully submitted,



Rebecca L. Forman  
Reg. No. 50,452  
Associate Counsel (Patents)  
Naval Research Laboratory  
4555 Overlook Avenue, S.W.  
Washington, D.C. 20375-5325  
(202) 404-1554